

Consider the BAS/CS

Tear yourself away from the darkroom and plug-in to Kim Kohen's use of home computers with photography. This combination is only as limited as your imagination.

It seems just about everything we do these days is somehow influenced by a computer. Evidence of this comes in the fact that most of the cameras and lenses we see on sale now, have either been designed by or have as an integral part, something resembling a microprocessor. This has enabled designers to create far more accurate and 'foolproof' cameras.

My involvement with computers is not so complex. I had tinkered with home computers for around 18 months before I started realising their potential for the photographer. I decided that because a great deal of photography is taken up with time in the darkroom, then this was the first area that I should explore. It occurred to me that most photo timers these days are electronic rather than mechanical, so I figured that this would be the first task I would make my computer perform.

I am not a computer expert and I do not have mega-buck super powerful computers. I use probably the cheapest computer on the market, a Dick Smith VZ 300, which at the time of writing was retailing for \$99.00. When you consider the cost of the Seiko watch you're probably using as a timer now, the computer would have to be considered great value.

Most home computers use the computer language called BASIC. To get the computer to do exactly what you want, it is necessary to have a program written in this language. There are numerous books available on BASIC and with a little patience it is a fairly straightforward language to understand.

Computer Timing

OK, back to the timers. For quite a while I had been processing films at home using my digital wristwatch as the only form of timer. This is OK in black and white where there are only a couple of steps to time. The problem was that an ever increasing amount of my work was being done on colour transparencies. With the number of steps and the precision required for E6 films, processing

them can be quite a handful. This is where the computer comes in.

The thing that computers do best is count. This meant that it was just a matter of getting the computer to time the necessary processing steps for me by making it count. If this sounds difficult, just have a look at a BASIC manual to see how easy it really is. The technique needed is called a 'nested loop'. In a nested loop, the computer is told to count to a certain number, but also to wait a certain time before going to the next number. Confused? Don't worry. Have a look at Table 1 and you should get a better idea of how it works.

Now for my E6 program I had a few

Table 1. This is the first developer timing step in my E6 program. Lines 176 and 180 display on the screen that the timing has started. Line 182 tells the computer to count from 318 to 0 in steps of -1. This is the development time in seconds. Line 188 is just a display of the time. Lines 190 and 200 are telling the computer to count to 381 BEFORE it counts the the next number from line 182. You see it takes the computer approx 1 second to count to 381. So this means the computer will count down from 318 and take 1 second between counts. Lines 205 to 220 tell the computer to make a sound every second for the last 10 seconds of

definite requirements. I wanted an audible warning as I was approaching a chemistry change, and I wanted a 15 sec. allowance in which to change chemistry. As well as that I wanted a time display so that at any stage during processing I could see at a glance how much time was remaining. It took quite a bit of time but I finally worked out the right program to perform all of these functions.

It would take too much space to reprint the entire program here. Although it is fairly simple, it does take up quite a bit of room. In the six months I have been using the program, I have processed over 100 rolls of film with a 100% success rate. (That's better than most labs).

Of course the timer principle has many applications. I have just finished a program that times Cibachrome processing and automatically adjusts its timing according to what temperature the user inputs.

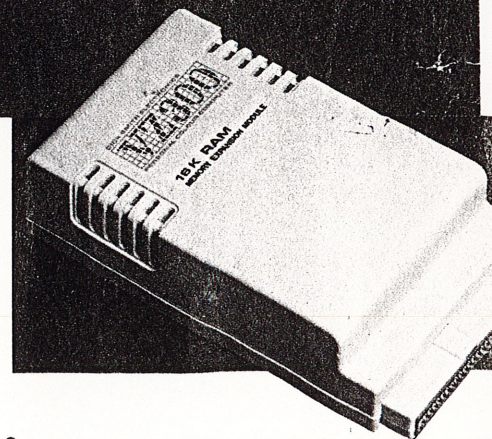
Outside the Darkroom

There are obviously many other applications for home computers in photography. They don't all have to be in the darkroom



This computer plugs into most television sets. It is amazing just how valuable it can be to the photographer, from timing film processing to designing filing systems.

This is a typical plug-in type memory expansion unit. It gives the user an extra 16K of Random Access Memory. Most of the author's photography programs require 3K of RAM to run.



the timing step. This is to warn about a chemistry change approaching. Simple isn't it!!

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176 PRINT @ 74, "FIRST DEV"
180 PRINT @ 135, "TIMING COMMENCED"
182 FOR S=318 TO 0 STEP -1
188 PRINT @ 265, "SECONDS : "S
190 FOR X=1 TO 381
200 NEXT X
205 IF S = 10 THEN 207
206 NEXT S
207 FOR T=30 TO 10 STEP -2
210 SOUND T,6
215 NEXT T
220 CLS

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Table 2. This program will calculate the hyperfocal distance of your lenses at a certain aperture. It will run on a Dick Smith VZ 200/300 and probably most other home computers.

```

10 REM "HYPERFOCAL DISTANCE"
20 CLS
30 PRINT @ 101, "TYPE IN FOCAL LENGTH"
40 PRINT @ 169, "OF THE LENS."
50 INPUT L
60 CLS
70 PRINT @ 102, "TYPE IN THE MAXIMUM"
80 PRINT @ 172, "APERTURE."
90 INPUT F
100 H = 1 * (L/F)

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110 CLS
120 PRINT @ 100, "HYPERFOCAL DISTANCE IS:"
130 PRINT @ 203, H "METRES"
140 FOR X=1 TO 2300: NEXT X
150 CLS
160 PRINT @ 64, "DO YOU WISH TO CONTINUE OR STOP?"
170 PRINT @ 195, "PRESS 'RETURN' TO CONTINUE"
180 PRINT @ 231, "PRESS 'Q' TO QUIT"
190 INPUT CS
200 IF CS = "Q" THEN GO TO 220
210 GOTO 10
220 CLS
230 END

```

either. One really simple program I have written works out the correct aperture to use when using extension tubes for close-ups. Another one lets you work out the hyperfocal length of your various lenses. (Table 2). This in itself is no big deal, but once you know the hyperfocal length of your lens, you can then calculate accurate depth of field ta-

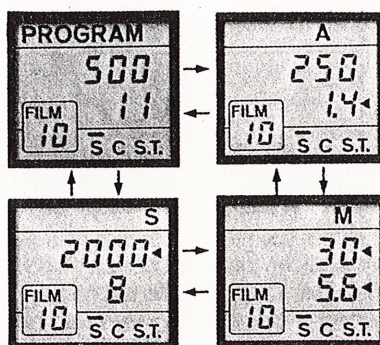
bles, and even optimum focusing distance for greatest depth of field. Naturally, you would work this out on your computer too. So now I've convinced you that without a computer your life's ambition of great photography will not be achieved. Before you rush out and spend a small fortune on the latest whiz-bang computer, there are a few things you should know. The most important thing to do before you buy, is to decide exactly what you want the computer to do. This will allow you to determine the type of computer, and the amount of memory you are

likely to need. Most of the photography programs I use require only about 3K of RAM to run. RAM or 'random access memory', is the memory used to store the users programs. The type of programs you run will depend on the amount of RAM you have available. The more complex the program the more RAM it requires. ROM or 'read only memory', is the computers inbuilt memory. The ROM cannot be programmed by the user. The BASIC language is part of the ROM.

If you are only going to use the computer for simple timing tasks then a computer with 16K of RAM will be quite adequate. However, if you want to run business-type programs like word processors or spreadsheet sheets, then a machine with a larger memory will be necessary. Something to remember here is that many computers RAM can be doubled by the fitting of plug-in memory expansion packs or boards. Go to a recognised computer shop and ask about any particular computer and its functions.

This article is, of course, only scratching the surface. Programs can be written for storing details of where photos were taken at what aperture, shutter speed, film type, etc. Computer filing systems can be designed for instant information on the location of your precious slides or negatives. How about a program for keeping track of how much money you spend on photography each year? You could take it one step further and work out your tax return on the computer. Who knows, the computer may even be a legitimate tax deduction. ●

If anyone is interested in the programs mentioned in this article, or if you have written any programs in BASIC relating to photography, write to Kim Kohen, 47 Allingham St, Banks town 2200. NSW.



The liquid crystal 'computer' display of the Minolta 7000. These displays will become even more popular in the future.

